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JOHN E. KOEHLER
EXECUTIVE VICE PRESIDENT

June 5, 1986

STAT

[Redacted]
Deputy Director for Policy
Intelligence Community Staff
Washington, D.C. 20505

Dear Morris:

Over the last few weeks my colleagues and I have met with a number of officials responsible for developing national policy on launch vehicles. We are deeply concerned by proposals of some departments to deny use of the Space Shuttle to commercial and foreign customers.

We believe that this would be a terrible mistake. It would injure the basic communications industry on which this country and the world depend. It would damage the U.S. international trade position. And, we believe it is unlikely to achieve the goal of establishing a vigorous commercial launch vehicle industry in the United States.

The enclosed paper summarizes what we believe to be the critical arguments in this important debate. It has been furnished to the principals in your organization, and others most directly concerned with national launch policy, by Dr. Allen E. Puckett, Chairman, Hughes Aircraft Company. I am submitting this copy for your information and consideration.

Sincerely,


John E. Koehler

Executive Vice President

Enclosure



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POSITION PAPER

U.S. LAUNCH VEHICLE POLICY

For fifteen years and under three Administrations, private satellite users have been forced to move from alternative launchers to the Space Shuttle. As a result, satellite builders like RCA and Hughes have invested well over \$100 million to design and qualify new families of spacecraft that would use the Shuttle most efficiently. The old Atlas, Delta, and Titan launchers are now either too small, too expensive or not powerful enough to launch such satellites. NASA progressively raised the prices of the alternative Atlas and Delta vehicles and ultimately terminated their production. Therefore, the European Ariane is currently the only viable alternative to the Shuttle.

Reliance on a single launch vehicle in the United States has been a policy of tragedy. Realizing this, the U.S. Air Force two years ago ordered ten large Complementary Expendable Launch Vehicles (CELV's), derived from the Titan, to provide backup capability. The Challenger crash validated the need for such alternatives.

As a consequence of bad policies and bad luck, the U.S. must now deal promptly with a serious short-term problem: A real shortage of launch capacity. We must also address the long-term problem: The need for a reliable, cost-effective, and complementary fleet of launch vehicles.

The Short Term

There will be shortage of launch capacity until the end of the decade. The stand-down of the Shuttle fleet, the time needed for re-design, the reduction of the fleet from four to three, and the necessary launch rate reduction have already caused a backlog of satellites. In the short-run only a few measures are available to mitigate the shortage:

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- 1) Commercial users whose satellites are compatible with Ariane can shift to that vehicle; some already have.
- 2) The priority of national security launches should be reviewed to insure that scarce launch resources are used efficiently.
- 3) Activation of the Vandenburg Air Force Base Shuttle facility should be deferred indefinitely. It is possible to launch all Vandenburg payloads with CELV's or by Shuttle from Florida. It is unwise to dedicate one-third of the Shuttle fleet to Vandenburg operations, and will cost an enormous sum each year to maintain such a capability.

The Long Run

There are important jobs to be done in space - military, scientific, and commercial. Those jobs require reliable and economical launchers. A desirable fleet would include both the Shuttle and unmanned rockets compatible with Shuttle payloads, so that they can back each other up. When the problems revealed by the Challenger disaster are dealt with, the Shuttle likely will be much more reliable than current ELV's. Certainly, developing a new generation of highly reliable launchers that can deliver payloads to orbit at a competitive cost will require major investments in new technology.

Arianespace leads the way to a low-cost Shuttle-compatible launcher with Ariane V, now under development. This investment in new technology is being made for Arianespace by the European Space Agency. No such project is underway in the U.S. Although partially compatible with the Shuttle, the Air Force CELV appears to be too large and too expensive to be commercially useful. Modifications to Delta, Atlas and Titan may be sufficient to make them compatible physically with satellites that will be built in the future. However, such modifications are likely to cost \$50 to \$100 million for each launcher, and will not produce economically competitive alternatives. Developing and testing a U.S. launcher that

could become competitive and that would achieve the needed reliability will cost hundreds of millions of dollars. It will certainly take more than five years to become operational.

Current Proposals

In the wake of the Challenger tragedy, some in the Government are advocating a complete reversal of the "Shuttle-only" policy. They propose now to deny completely the use of the Shuttle to commercial customers. Their proposal apparently rests on two premises:

- 1) That intelligence and military needs will consume all of the capacity of the Shuttle fleet.
- 2) That prospective U.S. commercial ELV manufacturers will not enter the business if the Shuttle remains a potential competitor.

The first premise is surprising. Military payloads had been expected to take about one-third of the shuttle's capacity. The reduction in near-term launch capacity certainly is causing a backlog problem. However, the Defense Department has bought CELV's, plans to buy more, and hopes to procure smaller rockets as well. Furthermore, budget constraints will limit hoped-for military, SDI, and NASA projects. If the government claims the entire fleet capacity, it is likely that it will have more launch capacity than it needs in the early 1990's. Of course, a decision to build a replacement for Challenger - which we support - would increase the capacity available beyond 1990.

The second premise has been promoted by the companies which are considering building ELV's on a commercial basis. Some in the government are supporting this thesis. Let us ask, would the end of foreign and commercial use of the Shuttle by itself be sufficient to bring into being a competitive U.S. ELV industry? Unless accompanied by a major infusion of government-sponsored development funding, it will simply produce a stillborn U.S. industry. It will be difficult for a company to be commercially successful for the following reasons:

- 1) Arianespace is an entrenched, efficient competitor that has good technology, commercial skills honed during years of competition with NASA, and technical support from a consortium of eleven European governments;
- 2) Because of the years of U.S. neglect, major investments in ELV development will be required to produce vehicles competitive with the Ariane family. ELV development requires that a firm be able to risk multi-million dollar failures;
- 3) Demand for commercial satellite launches is inherently unpredictable. It is driven by the uncertain pace of developments in satellite technology and by the willingness of companies to bear major risks in bringing new services and applications to the market;
- 4) In the background, there are potential competitors in the U.S.S.R., China, and Japan, all of which have existing ELV programs and have clearly indicated a desire to serve commercial markets.

How many companies will be willing to risk hundreds of millions of dollars to enter such a market, even if competition from the Shuttle is foreclosed? If a U.S. company does enter the business, its position as a competitor to the entrenched Arianespace will be precarious. Because of Arianespace's advantages and its relations with European governments, U.S. competitors will be the weaker parties. If a U.S. company does not enter the business, then excluding commercial users from the Shuttle will simply create a European monopoly in a business of substantial importance to the United States.

International Competition

Even if the United States turns its commercial launch business over to the private sector, the role of government policies in the launch programs of other countries will predominate. At every turn, the U.S. firms will face competitors backed by their governments with the political, economic, and technical resources

of those governments. If the business of commercial space launches comes to be dominated by other countries, the consequences for the United States will be serious:

- 1) The U.S. will forego its position in an industry that otherwise faces a promising future. Re-establishing a position later will be difficult, if not impossible.
- 2) The U.S. satellite industry is now a successful foreign trade competitor but will come under pressure to share design data required by foreign launching organizations for interface design and insurance decisions.
- 3) Foreign satellite manufacturers will be able to offer tie-in sales of launches and satellites as package deals (as U.S. firms now do), enabling heretofore uncompetitive satellite manufacturers to challenge the U.S. position.

Recommendations

Satellite owners and operators are part of the fundamental infrastructure which provides the links tying together much of the world. The importance of their role requires them to accept responsibility to provide reliable and continuous service. To discharge that responsibility, they must be able to launch satellites when needed. The proposals currently before the U.S. Government threaten their ability to meet those responsibilities to the country and the rest of the world.

Therefore, we recommend that:

- 1) Government users should be realistic in exercising their claim to first priority in the near term period when launch needs will exceed supply;
- 2) The government should continue its previous policy on Shuttle usage, rightly giving priority to defense and scientific uses, but fulfilling its commercial commitments and serving all users to the best of its ability;

- 3) The government should move quickly to begin construction of an orbiter to replace Challenger;
- 4) The government should move rapidly to develop a mixed fleet of cost-effective, compatible ELVs to complement the Shuttle. This will require a major investment in new technology and substantial coordination between the Defense Department, civilian agencies, and commercial users.

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